

Amendments to the Specification:

Please insert headings where indicated and replace the paragraphs in the application as filed with the following rewritten paragraphs:

On page 1, before paragraph (0001) insert the heading:

BACKGROUND OF THE INVENTION

(0002) An electric machine is a rotating machine which either as generator transforms mechanical energy into electric energy, or conversely, as an electric motor transforms electric energy into mechanical energy. The electric machine comprises a rotating rotor and a resting stator. The electric contact between rotor and stator is established through brushes. Such a brush is a component of the stator. As a springily guide slip contact it brings about the current transition to a moved machine part of the rotor, such as a collector or a slip ring. A brush is borne in a brush holder and is, as a rule, a press body (~~Presskörper~~) of carbon, of natural-electro- or metal-graphite.

(0003) A brush is pressed, for example by a spring, onto a slip ring of the electric machine. By the movement of the slip ring the brush is slowly eroded (~~abgerieben~~). Hereby the press body becomes smaller by a few to several millimeters per operating hour. The material of the press body is ground into dust. The abrasion or brush dust is carried away from the brush by the air present in the electric machine, and it is distributed into the nearer and further environment of the brush. Here the brush dust settles as an electrically conductive layer on insulating parts of the electric machine and it can cause electric sparkovers there. The brush dust settles also on movable parts and bearings (~~Lager~~) and causes there an increased frictional resistance.

On page 2, before paragraph (0005) insert the heading:

SUMMARY OF THE INVENTION

(0008) By the invention it is achieved that a large part of the brush dust is collected into the dust collecting head directly after its arising, or if it is conducted through the dust

collecting head, it collects into a further part of the brush dust collecting arrangement. The dust, therefore, no longer settles in undesired places of the electric machine. Short circuits caused by brush dust deposits or frictional losses in the movable parts of the electric machine are accordingly largely avoided. Since the electric machine, therefore, even with a long-time use of several thousand hours, remains substantially free from brush dust deposits in undesired places, the time intervals for necessary maintenance and cleaning operations can be increased. This leads to a good utilization (~~Auslastung~~) of the machine and to low maintenance costs for the operator.

(0015) In a further development of the invention the distance between the slip ring and--as seen in rotation direction of the slip ring--the front edge of the dust collecting head is greater than the distance between the slip ring and the rear edge of the dust collecting head. In this manner the air carried along by the slip ring is pressed onto the front edge of the dust collecting head, into the free space between the slip ring and the dust collecting head. Because of the slight distance between the slip ring and the rear edge of the dust collecting head the air, however, can poorly escape from the free space, so that between the slip ring and the dust collecting head a slight excess pressure (~~Überdruck~~) is formed. By arranging the opening of the dust collecting head in the zone of this free space, the air carrying the brush dust with it is pressed into the dust collecting head by the rotary movement of the slip ring into the dust collecting head. The brush dust is thus transported into the dust collecting head.

(0018) Expediently the brush collecting device comprises a suction fan (~~Absaugventilator~~). The suction fan is intended to generate a sub-pressure in the dust collecting head. By the sub-pressure the dust-carrying air is drawn out of the environment of the brush holder into the dust collecting head. The dust collecting head thus functions as a brush dust suction nozzle, and like a dust suction nozzle, draws in the air present in the environment of the nozzle. The brush dust collecting device there is designed for example so that air can be drawn in through the entry opening of the dust collecting head and is conductable through the collecting container. In the collecting container the brush dust is separated from the air. Through this form of execution of the invention virtually all of the brush dust is transported from the brush holders into the brush dust collecting device, so that virtually no brush dust passes to undesired places of the electric machine.

Before paragraph (0021) insert the following heading:

DESCRIPTION OF THE DRAWINGS

Before paragraphs (0022) insert the following heading:

DETAILED DESCRIPTION

(0022) In Fig. 1 a slip ring 1 of an electric machine is represented which (slip ring), in operation of the electric machine, rotates in rotating direction 2. Tightly on the slip ring there is arranged a brush holder 3 fastened to the stator, the steel spring 4 of which brush holder presses a brush 5 consisting of pressed charcoal (~~Presskohle~~) onto the slip ring. In immediate proximity to the slip ring 1 there is arranged a brush dust collecting device. The inlet opening 7 of the dust collecting head which is directed toward the slip ring 1 is shown in Fig. 1 not visible as an opening but only as a line (~~Strich~~). The dust collecting head 6 has an outlet opening 8 through which air can flow from the interior of the dust collecting head 6 into a tube 9 of the brush dust collecting device. The air of the brush dust collecting device is drawn by a suction fan (not shown in Fig. 1), from the dust collecting head 6 into the tube 9.

(0025) Fig. 2 shows in perspective representation a combination of brush holder 12 and dust collecting head 13, arranged on a slip ring 11. The slip ring 11 itself is not represented. Its position is indicated merely by a broken line. The brushes not represented in Fig. 2 lie in shafts (~~Schächten~~) 14 of the brush holder 12 during operation of the electric machine. In the neighborhood of the brush holder 12 and in immediate proximity to the slip ring 11, there is arranged a dust collecting head 13 of a brush dust collecting device. The dust collecting head 13 is represented without cover, so that the interior of the duct collecting head 13 is visible. During operation of the electric machine, the cover closes the interior of the dust collecting head 13. The front edge of the cover comes to lie there on the front edge of the brush holder 12. The front and the rear of the brush holder 12, there, are determined by the rotation direction 15 of the slip ring 11. The rear wall 16 of the dust collecting head 13 lying opposite the cover is arranged symmetrically to the cover. Together with the cover it forms a means that guides the brush dust to the inlet opening 17.